



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: D-36
UNIQUE ID NUMBER: 12M001
COMBUSTOR:
ENGINE TYPE: TF

BYPASS RATIO: 5.0
PRESSURE RATIO (π_{co}): 19.9
RATED THRUST (F_{oo}) (kN): 63.8

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F _{oo} (g/kN) or SN	14.0	52.8	59.6	17.4
AS % OF ORIGINAL LIMIT	71.4	44.7	74.7	64.8
AS % OF CAEP/2 LIMIT (NO _x)			93.4	
AS % OF CAEP/4 LIMIT (NO _x)			106.2	
AS % OF CAEP/6 LIMIT (NO _x)			113.6	
AS % OF CAEP/8 LIMIT (NO _x)			129.8	

DATA STATUS

- PRE-REGULATION
x CERTIFICATION
- REVISED (SEE REMARKS)

TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES
- DEDICATED ENGINES TO PRODUCTION STANDARD
- OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
(ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)

x OUT OF PRODUCTION (DATE: -)
- OUT OF SERVICE (DATE: -)

MEASURED DATA

MODE	POWER SETTING (%F _{oo})	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO _x	SMOKE NUMBER
TAKE-OFF	100	0.7	0.634	0.00	0.50	26.00	14.8
CLIMB OUT	85	2.2	0.533	0.00	0.40	22.00	
APPROACH	30	4.0	0.211	0.00	2.70	9.00	
IDLE	7	26.0		5.40	20.70	5.50	
LTO TOTAL FUEL (kg) or EMISSIONS (g)							-
NUMBER OF ENGINES				3	3	3	2
NUMBER OF TESTS				7	7	7	3
AVERAGE D _p /F _{oo} (g/kN) or AVERAGE SN (MAX)				12.0	48.8	56.3	14.8
SIGMA (D _p /F _{oo} in g/kN, or SN)				0.8	3.0	2.5	
RANGE (D _p /F _{oo} in g/kN, or SN)				11.2-13	46.2-52	54.5-59	

ACCESSORY LOADS

POWER EXTRACTION 0 (kW)
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	99.9-101.5
TEMPERATURE (K)	268-295
ABS HUMIDITY (kg/kg)	0.0017-0.0083

FUEL

SPEC	RT
H/C	1.95
AROM (%)	18.5

MANUFACTURER: IVCHENKO PROGRESS ZMBK
TEST ORGANIZATION: ZMKB
TEST LOCATION: ZAPOROJE
TEST DATES: 17/05/1984-10/12/1984

REMARKS

Compliance with Fuel Venting requirements:

- ('x' if complies, 'PR' if pre-regulation, '- ' if information is not available)